FLORENCE (IFP)
CDP LINES

CRUISE REPORT

SEGE. DILLON

Robb 7500/ RPT pdf

Cruise "French Connection A"

This cruise was carried out as part of a cooperative study by the U.S.G.S. and the Institute Français du Pétrole (IFP) in the area of the Blake Plateau and Southeast Georgia Embayment. A total of 1861 km of 24 channel CDP seismic profiling were collected along with gravity, magnetics and refraction profiling data (see sketch map). A U.S.G.S. magnetometer and sonobuoy refraction system and a Woods Hole Oceanographic Institution (WHOI) vibrating string accelerometer gravity meter were installed for the cruise.

A

LEG 1, 7-13 Jan 1975, Miami - Jacksonville

U.S. Personnel

William Dillon U.S.G.S.
Perry Parks U.S.G.S.
Robert Goldsborough WHOI
Constantine Tollios WHOI

Profiles FC I-IV were collected during the first leg of the cruise. About 240 km of profile FC III may have to be re-shot however, due to compressor problems. Six sonobuoy refraction profiles were attempted, but were unsuccessful due to equipment problems. Magnetics and gravity measurements were made along all tracks. The leg was terminated when the seas became too rough to continue profiling, and work on deck became difficult.

LEG 2, 15-21 Jan. 1975, Jacksonville - Miami

U. S. Personnel

William Dillon U.S.G.S.
Perry Parks U.S.G.S.
Robert Goldsborough WHOI
Kenneth Bayer U.S.G.S.

Profiles FC V-VIII were collected during this leg of the cruise. Gravity was collected along all tracks and five successful sonobuoy refraction profiles were obtained. Unfortunately, the magnetometer head was lost and five sections of the streamer were damaged at about the mid-point of line FC VI. Although water depth at this location was about 40 m, strong winds and heavy seas slowed the ship so much that the towed gear hit bottom, causing the damage. About 10 hours were lost repairing the streamer. Line FC VIII was terminated and the operations ended because one of the ship's two generators broke down and could not be repaired at sea. Weather had again deteriorated and we would have had to stop profiling shortly after the breakdown, in any case.

Because the cruise was ended due to the breakdown of their equipment, the IFP has agreed to carry out further profiling in mid-April. Potential

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lines for this cruise are shown dashed on the attached track map.

COMMENTS

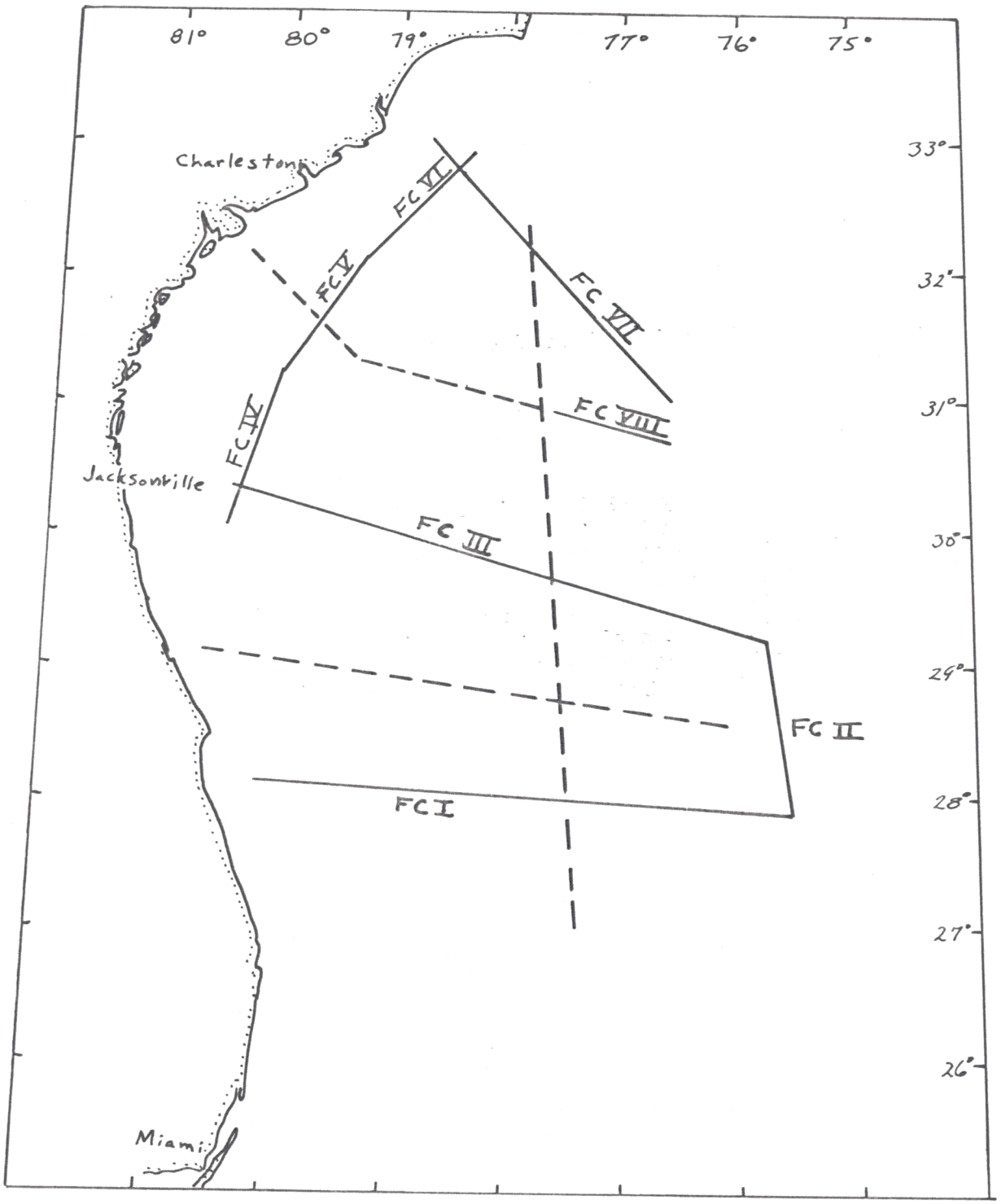
The sound source employed by IFP is a single "Flexichoc", which consists, very basically, of an iron housing and a plate about 1.5 m in diameter, connected by a heavy rubber diaphragm. The Flexichoc is pumped up using low pressure air, then locked and a vacuum is pulled. The plate then is triggered by an electromagnet so that it moves inward, producing an implosive pulse which is quite a clean signal. The unit is considered to be equivalent in power to about 900 cubic inches of air guns. Two of the Flexichoc units are used, one being streamed before the other is hauled so that the lines are not interrupted during maintenance or repairs on the sound source. The units are great heavy monsters, but a good system for handling them has been devised using a winch, crane and hydraulic A-frame.

The IFP group has concluded that small diameter streamers are quieter than large diameter ones. This seems logical, but is the reverse of the conclusion reached by U. S. streamer manufacturers (Seismic Engineering Co.). Thus, the IFP streamer is only about 5 cm in diameter. The French have also eliminated the finned depth controllers (birds) from their streamer and control its depth by varying speed and amount of oil in the streamer. This requires very delicate control and a liter more or less of oil in the streamer is significant. Considerable experience and effort are required to balance the streamer, but the technique should result in less turbulence near it. The streamer is run at about 25 m, approximately twice the depth of thoseon the American boats. The IFP people feel that this results in quieter operation due to less surface turbulence. U. S. streamers are usually run at about 1/2 wavelength. I gather that the French are trying to fly at about 1 wavelength depth. The effect should be the same, in terms of water surface reflections.

There may be some degradation of the data due to the generally poor weather conditions under which we operated. We also damaged and lost gear and lost time due to weather. In the future, we should try to avoid operations during the time of year when poor weather can be anticipated.

Jean-Pierre Fail and his group are very skilled at operating their system. We were very impressed with the competence and spirit of cooperation which we experienced.

William P. Dillon
Feb. 4, 1975



——— Profiles completed during January cruise

– – – Profiles proposed for April cruise